Rehabilitation of the Patellofemoral Joint

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KEYWORDS

• Patellofemoral • Treatment • Rehabilitation • Inflammation • Bracing • Therapy

KEY POINTS

- Acute intervention: should commence as soon as the diagnosis of patellofemoral pain syndrome (PFPS) is determined. Initially involves rest, protection, oral or topical medications, or injections, such as corticosteroids, prolotherapy, or platelet-rich plasma. Inflammation and swelling should be addressed with ice, compression, and elevation.
- Subacute phase: once pain and cause of injury have been addressed, correcting all factors that caused PFPS can begin. This is a multifaceted approach and should begin with an in-depth assessment of each individual. Interventions can include therapy, protection through bracing or taping, and foot orthoses if appropriate.
- Therapy: should focus on manual medicine, strength and flexibility, joint proprioception, and stability. Progression through increasingly difficult levels of activity allows the patient to build on skills learned during the previous level.
- Conservative treatment failure: not all cases respond to conservative measures. When a patient is not progressing as expected, multiple reasons should be considered, including chronicity and severity of the symptoms, noncompliance, or undiagnosed medical conditions.

INTRODUCTION TO REHABILITATION APPROACHES FOR PATELLOFEMORAL PAIN SYNDROME

Nonsurgical care by a specialist in physical medicine and rehabilitation is typically a multifaceted approach and can include modalities, bracing, medication, injection, proprioceptive techniques, restoration of normal movement patterns, and overall conditioning. There is evidence that physical therapy interventions have a significant beneficial effect on pain and function compared with no treatment.[1] However, as many as 55% of patients are unsatisfied with their recovery at 3 months, and 40% at 12 months.[2]

Patients are likely to ask about all treatment options, including surgery. A small randomized controlled trial showed that there was no difference in pain or function

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between chronic patients with patellofemoral pain syndrome (PFPS) and arthroscopy at 2-year and 5-year follow-up.[3]

GENERAL GOALS

Conservative measures should be attempted for 6 to 12 months before considering surgery,[4] unless there is a specific reason why rehabilitation is unlikely to work (see section on undiagnosed conditions). Goals such as return to sport or work can change throughout the recovery process and must be individualized for greatest chance of success.

CLINICAL OPTIONS FOR REHABILITATION: ACUTE PHASE

The first goal when a patient has been diagnosed with PFPS is to immediately interrupt tissue damage. This interruption can be achieved through rest, decreasing inflammation and swelling, medications (oral, topical or injected), and modalities such as ultrasonography or electrical stimulation.

ACTIVITIES

When addressing rest with your patients, avoidance of pain-inducing activities such as squats, stairs, or uphill running should be discussed. If the patient cannot ambulate without pain, consider making them partial or even non–weight bearing with crutches. Activity modification can be difficult for active individuals, so a practitioner can suggest exercises that do not further damage the patellofemoral joint. These exercises include swimming, pool running, weight lifting seated on bench or ball, or bicycling. In our clinic, we encourage bicycling for comfort, by setting the seat as high as possible to minimize knee flexion at the bottom of the pedal stroke. The patient self-selects the resistance and the revolutions per minute, which allows for pain-free bicycling. We make note of those settings and use them to progress the difficulty of those settings. We consider the elliptical device controversial for patellofemoral rehabilitation, and it should be used with caution, because studies suggest that increased patellofemoral joint contact force occurs during use.[5]

INFLAMMATION AND SWELLING

Inflammation and swelling can be addressed through cryotherapy, compression, and elevation.[6] Cryotherapy may further assist with pain control.[7,8] We recommend applying the ice pack without excessive pressure for 15 to 20 minutes, 2 to 4 times per day, as tolerated. If swelling is present, compression should be used with caution, because it can increase coexisting conditions, such as an inflamed plica or bursitis. In addition, a knee effusion has been found to inhibit the quadriceps muscle.[9] Elevation can reduce the accumulation of interstitial fluid via decrease in hydrostatic pressure. With regard to the lower limb, elevation should be above the level of the pelvis.[6]

MEDICATIONS

Oral and topical medications are available to address pain, which can interfere with activities of daily living and participation in therapy. Studies have shown that naproxen provides significantly better pain relief than placebo in the short-term,[10] but aspirin does not.[11] Oral supplementation, such as glucosamine, has been found to improve pain and function in patients with regular knee pain.[12] Topical diclofenac has also been found to be as effective in improving function and reducing knee osteoarthritis